As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled WAVE ANTENNA WIRELESS COMMUNICATION DEVICE AND METHOD, the specification of which (check applicable box(es)):

abla	is attached hereto. was filed on 8/26/2002 as U. was filed as PCT internation	S. Application Serial Nonal application No. Po	10.10/277,180 CT/ on	and (if applicable to	U.S. or 1	PCT application) was amended on
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FOR ADDITIONAL INVENTORS, check box 🔲 and attach sheet with same information and signature and date for each.

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled WAVE ANTENNA WIRELESS COMMUNICATION DEVICE AND METHOD, the specification of which (check applicable box(es)):

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by a acco	ordance with 37 C.F.R. 1.56	bove. I acknowledge the (a). I hereby claim foreit wand have also identified.	ne duty to disclose informations gn priority benefits under ed below any foreign appl	ation which is materia 35 U.S.C. 119/365 of lication for patent or in	I to the exan any foreign aventor's cer	nination of this application in application(s) for patent or tificate having a filing date
	ior Foreign Application(s): oplication Number	;	Country		D	ay/Month/Year Filed
I her	reby claim the benefit under	35 U.S.C. §119(e) of an	y United States provisional	application listed belo	ow:	
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subj 35 U	reby claim the benefit under ect matter of each of the cla J.S.C. 112, I acknowledge to of the prior applications an	ims of this application in the duty to disclose mate	is not disclosed in such pri rial information as define	for application in the new displayment in 37 C.F.R. 1.56(a)	nanner provi	ted below and, insofar as the ided by the first paragraph of rred between the filing
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belie puni	reby declare that all stateme eved to be true; and further ishable by fine or imprisonn ardize the validity of the ap	that these statements we ment, or both, under Sec	ere made with the knowled tion 1001 of Title 18 of the	lge that willful false st	tatements an	
1)	Inventor's Signature				Date	· · · · · · · · · · · · · · · · · · ·
	Inventor's Name (typed)	Ian	James	Forster		UK
		First	Middle Initial	Family Name		Citizenship
	Residence (City)	Essex		_ State/Foreign Coun	try)	ENGLAND
	Post Office Address	31 Great Cob, Springt	ield, Chelmsford		Zip Code	CM1 6LA
2)	Inventor's Signature	ASB	rell		Date 3	# Sept 2002
	Inventor's Name (typed)	Peter	Robert George	Horrell		/ UK
		First	Middle Initial	Family Name		Citizenship
	Residence (City)	Essex		_ State/Foreign Count	try)	ENGLAND
	Post Office Address	22 Rothesay Avenue,	Chelmsford	······································	Zip Code	CM2 9BU
3)	Inventor's Signature				Date	
	Inventor's Name (typed)	Patrick	F.	King		USA
		First	Middle Initial	Family Name		Citizenship
	Residence (City)	Glen Ellyn		_ State/Foreign Count	ry)	IL
	Post Office Address	418 North Park Boule	vard		Zip Code	60137

FOR ADDITIONAL INVENTORS, check box

and attach sheet with same information and signature and date for each.

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled WAVE ANTENNA WIRELESS COMMUNICATION DEVICE AND METHOD, the specification of which (check applicable box(es)):

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by a accordinve	ordance with 37 C.F.R. 1.56	bove. I acknowledge the (a). I hereby claim foreign wand have also identified	duty to disclose information priority benefits under disclose any foreign applications.	ation which is materia 35 U.S.C. 119/365 of lication for patent or it	I to the exan any foreign exentor's cer	nination of this application in application(s) for patent or tificate having a filing date
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	Inventor's Name (typed)	Ian	James	Forster		UK
	myonior britaino (cypod)	First	Middle Initial	Family Name		Citizenship
	Residence (City)	Essex		State/Foreign Coun	try)	ENGLAND
	Post Office Address	31 Great Cob, Springfie	ld, Chelmsford		Zip Code	CM1 6LA
2)	Inventor's Signature				Date	
	Inventor's Name (typed)	Peter	Robert George	Horrell		UK
	(31)	First	Middle Initial	Family Name		Citizenship
	Residence (City)	Essex		_ State/Foreign Coun	try)	ENGLAND
	Post Office Address	22 Rothesay Avenue, C	helmsford		Zip Code	CM2 9BU
3)	Inventor's Signature	Ath	7	le -	Date	9/7/02
	Inventor's Name (typed)	Patrick	F.	King		USA
	,	First	Middle Initial	Family Name	· · · · · · · · · · · · · · · · · · ·	Citizenship
	Residence (City)	Ølen Ellyn		State/Foreign Coun	try)	IL
	Post Office Address	418 North Park Bouleva	rd		Zip Code	60137

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by a acco	ordance with 37 C.F.R. 1.56	bove. I acknowledge the (a). I hereby claim foreign and have also identified	e duty to disclose informing priority benefits unde ed below any foreign ap	nation which is material or 35 U.S.C. 119/365 of plication for patent or it	I to the exant any foreign nventor's cer	nination of this application in application(s) for patent or tificate having a filing date
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belie puni jeop	ardize the validity of the ap	that these statements we ment, or both, under Sect	re made with the knowl tion 1001 of Title 18 of	edge that willful false s	tatements an and that such	
1)	Inventor's Signature	11 provides	g gu	ns or	Date \mathcal{I}	
	Inventor's Name (typed)	Michael First	Middle Initial	Pfeiffer Family Name		USA Citizenship
	Residence (City)	Lisle		State/Foreign Coun	trv)	IL
	Post Office Address	2745 Bristol Drive			Zip Code	60532
2)	Inventor's Signature				Date	
·	Inventor's Name (typed)				 .	
		First	Middle Initial	Family Name		Citizenship
	Residence (City)			State/Foreign Coun	try)	
	Post Office Address				Zip Code	
3)	Inventor's Signature				Date	
	Inventor's Name (typed)		•			
		First	Middle Initial	Family Name		Citizenship
	Residence (City)			State/Foreign Coun	ry)	
	Post Office Address				Zip Code	

FOR ADDITIONAL INVENTORS, check box and attach sheet with same information and signature and date for each.



MARCH 26, 2003

P.O. BOX 1287

CARY, NC 27512

TAYLOR M. DAVENPORT

WITHROW & TERRANOVA, P.L.L.C.

PTAS

Under Secretary of Commerce For Intellectual Property and Director of the United States Patent and Trademark Office Washington, DC 20231 www.uspto.gov



102291693A

UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD. FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 11/20/2002

REEL/FRAME: 013511/0330

NUMBER OF PAGES: 17

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

FORSTER, IAN J.

DOC DATE: 08/28/2002

ASSIGNOR:

HORRELL, PETER ROBERT GEORGE

DOC DATE: 09/03/2002

ASSIGNOR:

KING, PATRICK F.

DOC DATE: 09/07/2002

ASSIGNOR:

PFEIFFER, MICHAEL J.

DOC DATE: 09/03/2002 ·

ASSIGNEE:

MARCONI COMMUNICATIONS INC. 1000 MARCONI DRIVE WARRENDALE, PENNSYLVANIA 15086

SERIAL NUMBER: 10228180

FILING DATE: 08/26/2002

PATENT NUMBER:

ISSUE DATE:

JEFFREY OLSEN, EXAMINER ASSIGNMENT DIVISION OFFICE OF PUBLIC RECORDS

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,	FORM PTO-1595 (Rev. 6-93) QMR No. :0651-0011 (exp. 494)	-2002 ET U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office Atty. Docket No. 4579-154A
	To the Commissioner for Patents Please 10229	or copy thereof.
ì	Name of conveying party(ies): lan J. Forster	2. Name and address of receiving party(ies):
	Peter Robert George Horrell	Name: Marconi Communications Inc.
	Patrick F. King	Internal Address: 1000 Marconi Drive
	Michael J. Pfeiffer	Warrendale, PA 15086
	Additional name(s) of conveying party(ies) attached? Yes No	_
	3. Nature of conveyance: ☐ Assignment ☐ Merger ☐ Security Agreement ☐ Change of Name	Street Address:
	□ Other MeD 11.90.07	City: State: Zip:
5	Execution Date: 8/28/02, 9/3/02, 9/7/02, 9/3/02	Country:
		Additional name(s) & address(es) attached? ☐ Yes ⊠ No
	A. Patent Application No.(s) 10/228,180	B. Patent No.(s)
		tached? Yes No
	5. Name and address of party to whom correspondence concerning document should be mailed:	6. Total number of applications and patents involved:
11	Name: Taylor M. Davenport WITHROW & TERRANOVA, P.L.L.C. P.O. Box 1287 Cary, NC 27512 21/2602 EEKUBAY1 00000007 10225180	7. Total fee (37 CFR 3.41): \$40.00 ⊠ Enclosed ⊠ Authorized to be charged to deposit account
	FC:8021 40.00 97	8. Deposit account number: 50-1732 (Attach duplicate of this page if paying by deposit account)
	DO NOT USE	THIS SPACE
	Statement and signature.	<u> </u>
		formation is true and correct and any attached copy is a true
	Taylor M. Davenport	M. November 15, 2002
	Name of Person Signing Si	gnature Date

ASSIGNMENT

This Assignment made by us, Ian James Forster, a subject of the United Kingdom, residing at 31 Great Cobb, Springfield, Chelmsford, City of Essex, England, Peter Robert George Horrell, a subject of the United Kingdom, residing at 22 Rothesay Avenue, City of Essex, England, and Patrick F. King, a citizen of the United States of America, residing at 418 North Park Boulevard, City of Glen Ellyn, County of DuPage, State of Illinois, Michael J. Pfeiffer, a citizen of the United States of America, residing at 2745 Bristol Drive, City of Lisle, County of DuPage, State of Illinois, hereinafter referred to as assignors.

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in WAVE ANTENNA WIRELESS COMMUNICATION DEVICE AND METHOD for which we are about to make application for Letters Patent of the United States, and for which we have executed a declaration.

WHEREAS, Marconi Communications Inc., a corporation duly organized and existing under the laws of the State of Delaware and having a principal place of business at 1000 Marconi Drive, City of Warrendale, State of Pennsylvania, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in the specification executed by us, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged,

we, the said assignors, have sold, assigned, transferred and set over unto the said assignee, its successors and assigns, the entire right, title and interest in and to the above-mentioned application and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, the same to be held and enjoyed by the said assignee, for its interest, and for its own use and behalf, and the use and behalf of its successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the said assignee, its successors and assigns, that at the time of the execution and delivery of these presents we are the joint and lawful owners of the entire right, title and interest in and to the invention, application and Letters Patent above-mentioned and that the same are unencumbered, and that we have good right and lawful authority to sell and convey the same in the manner herein set forth.

And for the consideration aforesaid, we hereby covenant and agree to and with the said assignee, its successors and assigns, that we will, whenever its counsel or the counsel of its successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with said application, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to our said assignee, its successors or assigns, but

at its or their expense.

We hereby request the Commissioner for Patents to issue the Letters Patent in accordance with this instrument.

For the consideration aforesaid, we have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto the said assignee, its successors, assigns or nominee, the entire right, title and interest in and to any and all Letters Patent for said invention which may be granted in countries foreign to the United States and in and to any applications for Letters Patent which may be filed for said invention in countries foreign to the United States and in and to the invention described in said application; and we hereby authorize and empower the said assignee, its successors, assigns or nominees to apply for Letters Patent or other form of protection on said invention in its own name or in the name of its successor, assignee, or nominee, in any and all countries where it may desire to file such application and where said application may be filed by another than the inventor; and we hereby covenant and agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for procurement of Letters Patent, or other form of protection, for said invention or inventions in countries foreign to the United States, and for further investing or confirming the right and title therein to the assignee, its successors, assignee, or nominee, without charge to our said assignee, its successor, assignee or nominee, but at its or their expense.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

28th August 2002 Date	Ian James Forster
Date	Peter Robert George Horrell
Date	Patrick F. King
Date	Michael J. Pfeiffer

ASSIGNMENT

This Assignment made by us, Ian James Forster, a subject of the United Kingdom, residing at 31 Great Cobb, Springfield, Chelmsford, City of Essex, England, Peter Robert George Horrell, a subject of the United Kingdom, residing at 22 Rothesay Avenue, City of Essex, England, and Patrick F. King, a citizen of the United States of America, residing at 418 North Park Boulevard, City of Glen Ellyn, County of DuPage, State of Illinois, Michael J. Pfeiffer, a citizen of the United States of America, residing at 2745 Bristol Drive, City of Lisle, County of DuPage, State of Illinois, hereinafter referred to as assignors.

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in WAVE ANTENNA WIRELESS COMMUNICATION DEVICE AND METHOD for which we are about to make application for Letters Patent of the United States, and for which we have executed a declaration.

WHEREAS, Marconi Communications Inc., a corporation duly organized and existing under the laws of the State of Delaware and having a principal place of business at 1000 Marconi Drive, City of Warrendale, State of Pennsylvania, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in the specification executed by us, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged,

we, the said assignors, have sold, assigned, transferred and set over unto the said assignee, its successors and assigns, the entire right, title and interest in and to the above-mentioned application and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, the same to be held and enjoyed by the said assignee, for its interest, and for its own use and behalf, and the use and behalf of its successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the said assignee, its successors and assigns, that at the time of the execution and delivery of these presents we are the joint and lawful owners of the entire right, title and interest in and to the invention, application and Letters Patent above-mentioned and that the same are unencumbered, and that we have good right and lawful authority to sell and convey the same in the manner herein set forth.

And for the consideration aforesaid, we hereby covenant and agree to and with the said assignee, its successors and assigns, that we will, whenever its counsel or the counsel of its successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with said application, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to our said assignee, its successors or assigns, but

at its or their expense.

We hereby request the Commissioner for Patents to issue the Letters Patent in accordance with this instrument.

For the consideration aforesaid, we have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto the said assignee, its successors, assigns or nominee, the entire right, title and interest in and to any and all Letters Patent for said invention which may be granted in countries foreign to the United States and in and to any applications for Letters Patent which may be filed for said invention in countries foreign to the United States and in and to the invention described in said application; and we hereby authorize and empower the said assignee, its successors, assigns or nominees to apply for Letters Patent or other form of protection on said invention in its own name or in the name of its successor, assignee, or nominee, in any and all countries where it may desire to file such application and where said application may be filed by another than the inventor; and we hereby covenant and agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for procurement of Letters Patent, or other form of protection, for said invention or inventions in countries foreign to the United States, and for further investing or confirming the right and title therein to the assignee, its successors, assignee, or nominee, without charge to our said assignee, its successor, assignee or nominee, but at its or their expense.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

Date	Ian James Forster
3rd Sept 2002 Date	Peter Robert George Horrell
Date	Patrick F. King
 Date	Michael J. Pfeiffer

Attorney Docket No.: 4579-154A

ASSIGNMENT

This Assignment made by us, Ian James Forster, a subject of the United Kingdom, residing at 31 Great Cobb, Springfield, Chelmsford, City of Essex, England, Peter Robert George Horrell, a subject of the United Kingdom, residing at 22 Rothesay Avenue, City of Essex, England, and Patrick F. King, a citizen of the United States of America, residing at 418 North Park Boulevard, City of Glen Ellyn, County of DuPage, State of Illinois, Michael J. Pfeiffer, a citizen of the United States of America, residing at 2745 Bristol Drive, City of Lisle, County of DuPage, State of Illinois, hereinafter referred to as assignors.

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in WAVE ANTENNA WIRELESS COMMUNICATION DEVICE AND METHOD for which we are about to make application for Letters Patent of the United States, and for which we have executed a declaration.

WHEREAS, Marconi Communications Inc., a corporation duly organized and existing under the laws of the State of Delaware and having a principal place of business at 1000 Marconi Drive, City of Warrendale, State of Pennsylvania, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in the specification executed by us, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged,

we, the said assignors, have sold, assigned, transferred and set over unto the said assignee, its successors and assigns, the entire right, title and interest in and to the above-mentioned application and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, the same to be held and enjoyed by the said assignee, for its interest, and for its own use and behalf, and the use and behalf of its successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the said assignee, its successors and assigns, that at the time of the execution and delivery of these presents we are the joint and lawful owners of the entire right, title and interest in and to the invention, application and Letters Patent above-mentioned and that the same are unencumbered, and that we have good right and lawful authority to sell and convey the same in the manner herein set forth.

And for the consideration aforesaid, we hereby covenant and agree to and with the said assignee, its successors and assigns, that we will, whenever its counsel or the counsel of its successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with said application, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to our said assignee, its successors or assigns, but

at its or their expense.

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IN WITNESS WHEREOF, we have hereunto set our hands and seals.

Date	Ian James Forster
Date	Peter Robert George Horrell
9/7/02	MAL
Date	Patrick F. King
Date	Michael J. Pfeiffer

Attorney Docket No.: 4579-154A

ASSIGNMENT

This Assignment made by us, Ian James Forster, a subject of the United Kingdom, residing at 31 Great Cobb, Springfield, Chelmsford, City of Essex, England, Peter Robert George Horrell, a subject of the United Kingdom, residing at 22 Rothesay Avenue, City of Essex, England, and Patrick F. King, a citizen of the United States of America, residing at 418 North Park Boulevard, City of Glen Ellyn, County of DuPage, State of Illinois, Michael J. Pfeiffer, a citizen of the United States of America, residing at 2745 Bristol Drive, City of Lisle, County of DuPage, State of Illinois, hereinafter referred to as assignors.

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at its or their expense.

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For the consideration aforesaid, we have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto the said assignee, its successors, assigns or nominee, the entire right, title and interest in and to any and all Letters Patent for said invention which may be granted in countries foreign to the United States and in and to any applications for Letters Patent which may be filed for said invention in countries foreign to the United States and in and to the invention described in said application; and we hereby authorize and empower the said assignee, its successors, assigns or nominees to apply for Letters Patent or other form of protection on said invention in its own name or in the name of its successor, assignee, or nominee, in any and all countries where it may desire to file such application and where said application may be filed by another than the inventor; and we hereby covenant and agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for procurement of Letters Patent, or other form of protection, for said invention or inventions in countries foreign to the United States, and for further investing or confirming the right and title therein to the assignee, its successors, assignee, or nominee, without charge to our said assignee, its successor, assignee or nominee, but at its or their expense.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

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Date	Ian James Forster
Date	Peter Robert George Horrell
Date	Patrick F. King
9-03-2002 Date	Michael J. Pfeiffer

Attorney Docket No.: 4579-154A